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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _January 12, 2004_.
2a)☐ This action is **FINAL**.　　　2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-12,14-23 and 25-40_ is/are pending in the application.
　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-12,14-23 and 25-40_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
　　a)☐ All　b)☐ Some *　c)☐ None of:
　　　1.☐ Certified copies of the priority documents have been received.
　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.
　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 0Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims **1-11, 20-23, 25-40** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dougherty et al., U.S. Pat. No. 5,737,025 in view of Yasuki U.S. Pat.

No. 5,061,998.

Considering claim **1,** Dougherty et al discloses the following claimed subject matter,

note;

a) a modulation and video synchronization circuit for converting content data into at

least one modulated frame of data having video synchronization information is met by

synchronization to incoming data 34 and carrier modulation 44, Fig. 3.

       Except for;

b) an interleaver operatively connected to said modulation and video synchronization

circuit for interleaving the modulated frame of data.. is met by the disclosure that the "

hierarchical ancillary code may be frequency-interleaved between harmonics of the

horizontal sync frequency of the composite video signal." (Abstract)

c) ..into selected lines of the video data stream by substituting the modulated frame of
data into top and bottom video lines containing luminance information;

Regarding c), Dougherty discloses, "an ancillary code is added to a composite
video signal in its active video portion." (See Abstract and Fig.1) Dougherty does not
specifically disclose inserting the content data into top and bottom video lines.
However, inserting additional content data into this part of the active video portion (as
Doughtery indicates) is well known in the art. In this regard, Yasuki discloses that "... a
television signal includes 482 effective scanning lines for each frame in the vertical
direction (in practice, 483 scanning lines are provided, but since one of them is used for
multiplexed text broadcasting, 482 scanning lines can be effectively used), and
482.times.(8/100)=38 of the scanning lines are used for multiplexing new additional
signals. Therefore, not the television signal but the additional signal is superposed on
19 (=38/2) of the 38 scanning lines which lie on each of the upper and lower portions of
the image plane." (col. 1, lines 40-49) Therefore, it would have been obvious to the
skilled in the art at the time the invention was made to modify the system of Dougherty
by providing a well known method of inserting anciliary or additional information on each
of the upper and lower portions of the image plane in order to prevent or avoid the
complicated process of spreading the content data in several frequencies band in the
composite signal.

Considering claim 2, a system according to Claim 1, and further comprising a decode
circuit for receiving the video data stream that has been encoded with the content data

and extracting the content data therefrom, is met by decoder 18, fig.1; (see col. 6, lines

43-50)

Considering claim **3**, a system according to Claim 2, wherein said decode circuit further

comprises a line deinterleaver for separating video lines having the encoded content

data from the video data stream into a modulated frame of content data.

Regarding claim 3, see rejection of claim 1(b).

Considering claim **4**, a system according to Claim 3, wherein said decode circuit further

comprises a DC restoration circuit that restores a DC bias level for any content data in

the modulated frame of data.

Regarding claim 4, Dougherty does not specifically disclose a DC restoration

circuit. However, the Examiner takes Official Notice here in that DC restoration is well

known in that and thus, it would have been obvious to the skilled in the art at the time

the invention was made to modify the system of Dougherty et al by providing a DC

restorer in order to correct bias in the circuit.

Considering claim **5**, a system according to Claim 3, wherein said decode circuit further

comprises a bit and frame synchronizer circuit for synchronizing the modulated frame of

content data, is met by the Synchronization With Code 66, Fig. 4;

Considering claim **6**, a system according to Claim 3, wherein said decode circuit further comprises demodulator/decode circuit for demodulating and decoding the modulated frame of content data into the content data, is met by decoder 18 (fig.1) or Decoder 60 (fig.4).

Considering claim **7**, a system according to Claim 1, and further comprising a video signal decoder circuit for receiving a video signal that is compliant with a broadcasting format and converting the video signal into the video data stream to be encoded with content data, is met by Decoder 18, fig.1;

Considering claim **8,** a system according to Claim 7, wherein the video signal that is compliant with a broadcasting format comprises one of a National Television System Committee (NTSC), Digital Advanced Television Systems Committee (ATSC), Sequentiel Couleur a Memoire (SECAM), or Phase Alternation Line (PAL) compliant broadcasting format, is met by the disclosure, "It is known to add ancillary signals to program signals...Such programs may include television programs, radio programs, and/or the like, and the broadcast of such programs over the air, over a cable, via a satellite..." (col. 1, lines 13-23)

Considering claim **9**, a system according to Claim 1, and further comprising a video signal formatting circuit operatively connected to said interleaver for receiving the video

data stream after interleaving with the modulated frame of content data and formatting

the video data steam into a video signal that is compliant with a broadcasting format.

See rejection of claim 1(b).

Considering claim **10**, a system according to Claim 9, and further comprising a decode

circuit for receiving the video signal that has been encoded with the content data and

extracting the content data, is met by the Decoder 18, fig.1;

Considering claim **11**, a video signal decoder for converting the video signal into a video

data steam; and a line separation and restoration circuit that extracts the content data

from the video data stream.

See rejection of claim 4.

Considering claim **20**, Dougherty et al discloses the following claimed subject matter,

note;

a) the claimed substituting luminance information within the video signal with a

modulated frame of content data, is met by the disclosure that "an ancillary code is

added to a composite video signal in its <u>active video portion</u>." (See Abstract and Fig.1)

b) <u>substituting the modulated frame of content data into top and bottom video lines</u>

<u>containing luminance information</u> to provide an additional information channel on the

video signal;

Regarding b), Dougherty discloses, "an ancillary code is added to a composite video signal in its active video portion." (See Abstract and Fig.1) Dougherty does not specifically disclose inserting the content data into <u>top and bottom video lines</u>. However, inserting additional content data into this part of the <u>active video portion</u> (as Doughtery indicates) is well known in the art. In this regard, Yasuki discloses that "... a television signal includes 482 effective scanning lines for each frame in the vertical direction (in practice, 483 scanning lines are provided, but since one of them is used for multiplexed text broadcasting, 482 scanning lines can be effectively used), and 482.times.(8/100)=38 of the scanning lines are used for multiplexing new additional signals. <u>Therefore, not the television signal but the additional signal is superposed on 19 (=38/2) of the 38 scanning lines which lie on each of the upper and lower portions of the image plane.</u>" (col. 1, lines 40-49) Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Dougherty by providing a well known method of inserting anciliary or additional information on each of the upper and lower portions of the image plane in order to prevent or avoid the complicated process of spreading the content data in several frequencies band in the composite signal.

Considering claim **21**, the claimed forming the modulated frame of data by encapsulating a frame of content data with video synchronization information, is met by Synchronization To Incoming Data 34 and Carrier Modulation 44, Fig.3;

Considering claim **22**, a method according to Claim 21, and further comprising the step of embedding a frame sequence and frame marker for synchronization;

See rejection of claim 21.

Considering claim **23**, a method according to Claim 20, and further comprising the step of forming the modulated frame of content data by coding a stream of content data with **error correction and modulation information.**

Regarding claim **23**, Dougherty discloses modulating the additional information before it is added to the composite video signal. Dougherty does not specifically disclose coding the content data with error correction information. The Examiner takes Official Notice in that error correction is notoriously well known in the art and, therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Dougherty et al by providing an error corrector in order to more easily predict and correct the random and burst errors in the signal.

Considering claim **25**, formatting the video signal for transmission as one of a National

Television System Committee (NTSC), Digital Advanced Television Systems Committee

(ATSC), Sequentiel Couleur a Memoire (SECAM), or Phase Alternation Line (PAL)

compliant broadcasting format video signal, is met by the disclosure, "It is known to add

ancillary signals to program signals...Such programs may include television programs,

radio programs, and/or the like, and the broadcast of such programs over the air, over a

cable, via a satellite..."   (col. 1, lines 13-23)

Considering claim **26**, a method according to Claim 25, and further comprising the step

of receiving the video signal after broadcast in a broadcasting format and extracting the

content data that had been substituted into the video signal as the additional information

channel, is met by the decoding circuit or the decoder 18, Fig.1.

Considering claim **27**, a method for encoding information into a video signal of a

television signal comprising the step of substituting with a modulated frame of content

data the top and bottom video lines in a video signal corresponding to the top and

bottom of a video display that are substantially shadowed from viewing on a television.

See rejection of claim 20;

Considering claim **28**, a method according to Claim 27, wherein the content data comprises digital content data that has been coded with error correction and modulation information for a video signal broadcasting format.

> See rejection of claim 23;

Considering claim **29**, a method according to Claim 28, wherein the video signal comprises one of a National Television System Committee (NTSC), Digital Advanced Television Systems Committee (ATSC), Secuentiel Couleur a Memoire (SECAM), or Phase Alternation Line (PAL) compliant broadcasting format, is met by the disclosure, "It is known to add ancillary signals to program signals... Such programs may include television programs, radio programs, and/or the like, and the broadcast of such programs over the air, over a cable, via a satellite..."   (col. 1, lines 13-23)

Considering claim **30**, a method according to Claim 28, and further comprising the step of receiving the video signal after broadcast and extracting content data that had been substituted into the video signal as an additional information channel, is met by the decoder 18 or decoding circuit 66, figs. 1 and 4, respectively.

Considering claim **31**, the claimed

a) receiving a video signal as a video data stream to be enhanced with content data; converting content data into at least one frame of content data;

b) adding video synchronization information and modulation data into the at least one

frame of content data to form a modulated frame of content data;

c) interleaving the modulated frame of content data within at least one selected video

line of the video signal,

by substituting the modulated frame of data into top and bottom video lines containing

luminance information;

See rejection of claims 1 and 20;

Considering claim **32**, a method according to Claim 31, and further comprising the step

of converting the video data stream that has been interleaved with the modulated frame

of content data into a video signal that is compliant with a broadcasting format.

See rejection of claim 1;

Considering claim **33**, a method according to Claim 32, wherein the broadcasting format

for the video signal comprises one of a National Television System Committee (NTSC),

Digital Advanced Television Systems Committee (ATSC), Sequential Couleur Aemoire

(SECAM), or Phase Alternation Line (PAL) compliant broadcasting format.

See rejection of claim 29.

Considering claim **34**, a method according to Claim 31, and further comprising the steps

of: broadcasting the video signal;

a) receiving the broadcasted video signal within a decoder and converting the received

video signal into a video data steam, is met by the decoder 18, fig.1;

b) extracting the content data from the video data stream, is met by the decoder as well.

(See figure 4).

Considering claim **35**, a method of processing a video signal comprising the steps of:

a) receiving a video signal as a video data stream to be enhanced with content data, is

met by video input 32, fig.1;

b) converting content data into frames of content data, is met by data decoding 35, fig.1;

c) adding video synchronization information and modulation data into the frame of

content data to form a modulated frame of content data, is met by synchronization to

incoming data 34 and by carrier modulation 44, fig.1;

e) converting the video data stream into a video signal for broadcast, is met by Decoder

18, fig.1 (or decoder 60 fig.4.)

f) receiving the video signal within a decoder and decoding the video signal into a video

data stream, is met by input to Decoder 18, fig.1;

g) extracting the content data from the video data stream, is met by the disclosure, "A plurality of decoders 16 and 18 are provided in association with selected points of distribution of the composite video signal in order to decode the ancillary signal codes which have been encoded onto the composite video signal by the ancillary signal encoders 12-1, 12-2, . . . 12-N. The decoder 16 is associated with the distribution point 2 so that it decodes the ancillary signal codes from the composite video signal at the output of the ancillary signal encoder 12-2, and the decoder 18 is associated with the distribution point N so that it decodes the ancillary signal codes from the composite video signal at the output of the ancillary signal encoder 12-N. However, more or fewer decoders may be provided at these or other distribution points." (col. 6, lines 39-51)

Except for;

c) interleaving the modulated frame of content data within at least one =selected video line of the video data stream, by substituting the modulated frame of data into top and bottom video lines containing luminance information;

Regarding c), see rejection of claims 1(b) and (c), and claim 20.

Considering claim **36**, a method according to Claim 35, wherein the step of extracting comprises the step of restoring a DC bias level for any content data.

See rejection of claim 4.

Considering claim **37**, a method according to Claim 35, and further comprising the step

of removing system noise and transmission artifacts within a bit and frame synchronizer

circuit, is met by Synchronization with Code 66, Fig.4.

Considering claim **38**, (as amended)

a) receiving the video signal within a decoder and decoding the video signal into a video

data stream, is met by the decoder 18, fig.1;

b) extracting the content data, is met by decoder 18, fig.1. (see col. 6, lines 39-51 and

col. 9, 43-51, as well as, Fig.4 decoder)

c) ...from the <u>top and bottom lines of the active portion of the video signal in the</u> video

data stream

As for (c) and the top and bottom lines of the active portion of the video signal in

the video data stream, see rejection of claims 1 and 20;

Considering claim **39**, a method according to Claim 38, wherein the step of extracting

the content data from the video data stream comprises the step of restoring a DC bias

level for any content data.

See rejection of claim 4.

Considering claim **40**, a method according to Claim 38, and further comprising the step

of removing system noise and transmission artifacts within a bit and frame synchronizer

circuit, is met by Synchronization with Code 66, Fig.4.

3.   Claims **12 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Dougherty et al., U.S. Pat. No. 5,737,025 in view of Stewart U.S. Pat. No.

5,666,170 and further in view of Yasuki U.S. Pat. No. 5,061,998.

Considering claim **12**, Dougherty et al discloses the following claimed subject matter,

note;

a) a modulation and video synchronization circuit for converting content data into at

least one modulated frame of data having video synchronization information, is met by

synchronization to incoming data 34 and carrier modulation 44, Fig. 3.

d) an interleave processing and control circuit operative with the modulation and video

synchronization circuit and interleaver for timing and proper interleaving of modulated

frames of content data with the video data stream, is met by the disclosure that the "

hierarchical ancillary code may be frequency-interleaved between harmonics of the

horizontal sync frequency of the composite video signal." (Abstract)

        Except for;

b) an interleaver for receiving a video data stream and a modulated frame of content

data having video synchronization information and interleaving the modulated frame of

data within at least one selected video line of the video data stream that is substantially

shadowed from viewing on a video display;

c) by substituting the modulated frame of data into top and bottom video lines containing

luminance information;

Regarding b), as shown above, while Dougherty does not specifically disclose

the and interleaver circuit, the reference of Dougherty teaches that the "hierarchical

ancillary code may be frequency-interleaved between harmonics of the horizontal sync

frequency of the composite video signal." (Abstract)

Stewart discloses an apparatus for decoding video signals encoded in different

formats where a deinterleaving processing apparatus comprising deinterleaver 80,85

multiplexer 90 and RAM 95 receive and deinterleave the synchronized digital data

stream. Therefore, it would have been obvious to the skilled in the art at the time the

invention was made to modify the system of Dougherty by providing the interleave

processing circuit of Stewart in order to correctly interleave the signals.

Regarding c), See rejection of claim 1(c);

Considering claim **14**, an encoder according to Claim 12, and further comprising a video

signal decoder circuit for receiving a video signal that is compliant with a broadcasting

format and converting the video signal into the video data stream to be encoded with

content data, is met by decoder 18 fig.1 or Decoding circuit 60, fig.4;

4.   Claims **15-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Stewart, U.S. Pat. No. 5,666,170 in view of Yasuki U.S. Pat. No. 5,061,998.

Considering claim **15**, (as amended)

a) a video signal decoder for converting the video signal into a video data stream, is met

by Decoder 12, Fig.1;

b) a line separation and restoration circuit that extracts the content data from the <u>top</u>

<u>and bottom lines of the active portion of video signal</u>, is met by the DeInterleaver 80,

and Deinterleaver 85, Fig.1;

        Except for;

c) the <u>top and bottom lines of the active portion of video signal</u>

        Regarding c), Stewart does not specifically disclose inserting content data into

top and bottom video lines.   However, inserting additional content data into this part of

the active video portion is well known in the art. As shown above, Yasuki in this regard

teaches that "... a television signal includes 482 effective scanning lines for each frame

in the vertical direction (in practice, 483 scanning lines are provided, but since one of

them is used for multiplexed text broadcasting, 482 scanning lines can be effectively

used), and 482.times.(8/100)=38 of the scanning lines are used for multiplexing new

additional signals. <u>Therefore, not the television signal but the additional signal is</u>

<u>superposed on 19 (=38/2) of the 38 scanning lines which lie on each of the **upper and**</u>

<u>lower portions of the image plane</u>." (col. 1, lines 40-49) Hence, it would have been

obvious to the skilled in the art at the time the invention was made to modify the system

of Stewart by providing a well known method of inserting additional information on each

of the upper and lower portions of the image plane in order to add the ability of adding

content data, such as caption, text, into the composite video signal so that the system of

Stewart is made more useful to the viewer.

Considering claim **16**, wherein said line separation and restoration circuit further

comprises a line deinterleaver for separating video lines having the encoded content

data from the video data stream into a modulated frame of content data, is also met by

the DeInterleaver 80, and Deinterleaver 85, Fig.1;

Considering claim **17**, Stewart discloses all claimed subject matter, except for;

wherein said line separation and restoration circuit further comprises a DC restoration

circuit operatively connected to said line deinterleaver and operative on said video data

stream for restoring a DC bias level to content data encoded within the modulated frame

of data.

Regarding claim 17, Stewart does not specifically disclose a DC restoration

circuit.   However, the Examiner takes Official Notice here in that DC restoration is well

known in that and thus, it would have been obvious to the skilled in the art at the time

the invention was made to modify the system of Stewart by providing a DC restorer in

order to correct bias in the circuit.

Considering claim **18**, a decoder according to Claim 16, and further comprising a bit and

frame synchronizer circuit for synchronizing the modulated frame of content data, is met

by synchronization circuit 75, fig.1;

Considering claim **19**, a decoder according to Claim 16, and further comprising a

demodulator/decode circuit for demodulating and decoding the modulated frame of

content data into the content data, is met output processor 125, fig.1. (See Abstract,

and col. 10, line 51 through col. 11, line12)

Response to Arguments

5.   Applicant's arguments with respect to claims **1-12,14-23,25-40** have been

considered but are moot in view of the new ground(s) of rejection.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Boyd et al. U.S. Pat. No. 5,023,727 discloses a method and device for producing

a substantially continuous composite video signal and teaches that active video may be

divided into a viewable portion and overscan area.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Paulos M. Natnael whose telephone number is (703)

305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

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Business Center (EBC) at 866-217-9197 (toll-free).

PMN
March 21, 2004

PAULOS M. NATNAEL
PATENT EXAMINER